

### REMARKS

Claims 14 and 42 have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite. It is respectfully submitted that this rejection has been overcome by the amendment of these claims herein.

Claims 35 and 37 have been rejected under 35 U.S.C. 102(e) as being anticipated by Taniguchi, and claim 36 has been rejected under 35 U.S.C. 103(a) as being obvious in view of Taniguchi. Claims 1-5, 7-14, 21-24, 40-42 and 44-46 have been rejected under 35 U.S.C. 103(a) as being obvious in view of Yasuda. Claims 1, 8-14, 19, 20-28, 29, 31-34 and 47-50 have been rejected as unpatentable over Keilbach in view of Taniguchi. These rejections will be discussed in turn, as they pertain to the independent claims.

#### ***35 U.S.C. 102(e) – Taniguchi***

While Applicants do not concede that claim 35 is anticipated by Taniguchi, for at least the reasons discussed in Applicants' last response, Applicants have amended claim 35 to recite that the detecting step is performed using a detector that, with the light source, is integrated in a holder for the optical element. As discussed with regard to claim 1 in Applicants' last response, in Taniguchi the light source and the detector are not integrated in a holder for the optical element. Instead, the light emission unit 118 and the first light-receiving member 120 of Taniguchi are positioned on a wafer stage, which is described as a work table. (See Taniguchi, col. 31, lines 3-43, and FIGS. 18 and 19). Applicants respectfully request that this rejection be withdrawn in view of this amendment.

#### ***35 U.S.C. 103(a) – Yasuda***

Independent claims 1, 13 and 14 have been rejected as unpatentable over Yasuda.

Each of these claims requires that the light source and the detector be *integrated in a holder for the optical element*.

The Examiner asserts that "while the reference does not disclose a particular arrangement for supporting the light source, detector, and associated optics; it is clear that they must be held

in some manner; it would have been at least obvious to install them in a manner in which they are 'integrated in' the holder". The Examiner's rationale for this assertion is that "this would help insure their proper placement and alignment with respect to the optical element and each other for proper functioning." Applicants respectfully disagree with the Examiner's conclusion that this feature is obvious.

Yasuda discloses a projection exposure apparatus for photolithographic processes including a mask-deflection detection system and a deflection correction system. Figure 1 shows an arrangement of a mask (10) (construed by the Examiner as the optical element), a mask holder (12) (thus, a holder for the optical element), a mask-deflection detection system (22) that is arranged below and around the mask holder (12), and a deflection correction system that is arranged besides the mask (10) and mask holder (12) [c. 6, lines 48-56].

The mask-deflection detection system (22) includes a light source (24) and a projection lens (26) for projecting a light beam onto the mask (10), and further a light-receiving lens (28) and a photodetector (30) for detecting a reflected light beam reflected by the mask (10) so as to produce a detection signal corresponding to the variation in the position at which the reflected light beam is received [c. 13, lines 29-37]. A variation in position of the mask (10) up and down will cause a corresponding variation in position of the point of incidence of the reflected light beam on the photodetector (30). A deflection of the mask (10) with respect to a reference position is detected from the position of the point of incidence of the reflected light beam on the photodetector (30) [c. 13, lines 46-55]. Thus, it is important that the components of the mask-deflection detection system not deflect in response to deflection of the mask, but instead remain stationary in a reference position. Based on the detection result of the photodetector (30), a deflection correction value is calculated and the deflection of the mask is corrected by the deflection correction system. The deflection correction system includes an arithmetic operation unit (32), a control unit (34), and a mask-deflection correction unit (38). The deflection correction system corrects the deflection of the mask for example by changing pneumatic or hydraulic pressure, or by operating piezoelectric, electrostrictive or magnetostrictive actuator elements.

As acknowledged by the Examiner, Yasuda does not disclose that the optical components are integrated in the mask holder. This is not surprising. One of ordinary skill in the art would not have had a reasonable expectation of success in integrating the components of the mask-deflection detection system (22) in the mask holder (12). Any deflection of the mask relative to a reference curvature is corrected by force effects. Several parts of the mask are deflected upward or downward, depending on the deviation to the reference curvature. The integration of the several components in the mask holder is in the case of the Yasuda patent exceptionally unfavorable. An application of force to the mask, mounted onto the mask holder, can result in displacement or deformation of the mask holder. If the components were integrated in the mask holder, stress-induced displacement or deformation of the mask holder would result in misalignment of the integrated components. Such misalignment would adversely affect the detection of deflection of the mask and thus the correction of such deflection by the deflection correction system. Thus, the modification proposed by the Examiner would render Yasuda's invention unsatisfactory for its intended purpose, and accordingly there is no suggestion or motivation to make the proposed modification. Furthermore, the integration of the components in the mask holder would not help to insure proper placement and alignment of the components with respect to the optical element. In contrast, the integration would result in misalignment of the components with respect to the optical element.

***35 U.S.C. 103(a) – Keilbach in view of Taniguchi***

While Applicants do not concede that the rejection of independent claims 1, 13, 14 and 28 as being unpatentable over this combination of references is proper, Applicants have amended claims 1, 13, 14 and 28 to recite that the light source emits light having a wavelength different from that of the light emitted by the laser resonator. Support for this amendment is found, for example at page 4, line 17 of Applicants' disclosure.

Keilbach discloses a monitoring system where nonspecular reflections of the laser beam are detected and the wavelength of the detected light beam is equal to the laser wavelength.

Taniguchi does not supply a teaching that would have suggested to one of ordinary skill in the art to modify Keilbach to reach Applicants' claimed invention.

Applicants note that the subject matter of claim 42, i.e., that the light source emits light having a frequency different from that of the light emitted by the laser resonator, has not been rejected as unpatentable over Keilbach in view of Taniguchi, and thus the Examiner appears to agree that this feature is patentable over this combination of references. (Wavelength is related to frequency through the constant speed of light,  $c=\lambda*f$ .)

Applicants respectfully submit that this amendment obviates the rejection based on Keilbach and Taniguchi, and request that this rejection be withdrawn.

The dependent claims are patentable for at least the reason that they depend from a patentable base claim.

Applicants note that merely because they have not addressed each and every contention made by the Examiner does not mean that Applicants have conceded these points. Moreover, Applicants submit that the claims may be patentable for other reasons in addition to those discussed above.

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The fee for \$120.00 for the one month extension of time is being paid for concurrently herewith on the Electronic Filing System (EFS) by way of Deposit Account authorization. Please apply all charges or credits to Deposit Account No. 06-1050, referencing Attorney Docket No. 15540-011001.

Respectfully submitted,

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